have no GVHD. The remaining patient has not relapsed but has chronic GVHD of the liver and GI tract. Despite the high rate of relapse seen in this series all patients are currently in molecular remission with a performance status of 100% and without extensive CGVHD. Thus Bu/Cy appears to be an effective approach and avoids TBI-specific toxicity.However frequent monitoring of disease status is essential to ensure that relapse is ascertained in a timely manner and appropriate interventions are taken.

168

NEURODEVELOPMENTAL OUTCOMES OF UNRELATED UMBILICAL CORD BLOOD TANSPLANTATION FOR METACHROMATIC LEUKODYSTROPHY

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Metachromatic leukodystrophy is an autosomal recessive lysosomal storage disorder caused by arylsulfatase A deficiency (ARSA). ARSA prevents the breakdown of cerebroside 3-sulfatate. Sulfatides accumulate within lysosomes of myelin forming cells in the central and peripheral nervous system causing demyelination and progressive neurologic deterioration that leads to dementia, seizures, blindness, deafness and subsequent death. It has a wide variability in age of onset and disease severity. We hypothesized that transplantation of umbilical-cord blood from unrelated donors would positively alter clinical outcomes in patients affected with MLD who are minimally symptomatic.

Fourteen patients with Metachromatic Leukodystrophy referred to Duke University Medical Center, underwent transplantation with umbilical cord blood from unrelated donors after myeloablative chemotherapy. Age at transplant ranged from 0.17 to 16.4 years with a median of 5.2 years. Engraftment, survival, neurophysiologic measures, and neurodevelopmental function were serially evaluated.

Thirteen of 14 patients engrafted after initial transplant. One patient underwent a second transplant, with successful engraftment. Eight patients are surviving, 4 died of viral infections, 1 of respiratory failure and one of EBV lymphoma. BAERS and NCV became abnormal early in the disease course and continued to worsen after transplant. EEG and VEP were only abnormal later in the disease course.

Transplantation of umbilical-cord blood from unrelated donors was beneficial to asymptomatic children. Mildly symptomatic children showed deterioration of motor skills, but maintained cognitive function at pre transplant level. Children with moderate to severe disease at the time of transplant showed no improvements in neurodevelopmental function. As in other leukodystrophies, early intervention is necessary for optimal outcome.

169

NEURODEVELOPMENTAL OUTCOMES OF CHILDREN WITH MPS II AFTER UNRELATED UMBILICAL CORD BLOOD TRANSPLANTATION

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MPS II or Hunter's Syndrome is due to the deficiency of the lysosomal enzyme iduronate sulfatase that results in lysosomal accumulation of dermatan and heparan sulfate, with progressive tissue and organ dysfunction, and in the severe form, premature death. The severe form of MPS II is characterized by mental retardation, communicating hydrocephalus, hearing impairment, coarse facial features, hepatomegaly, obstructive airway disease, cardiac dysfunction, joint stiffness and skeletal involvement. They typically die in their mid teens secondary to severe neurological involvement and/or airway obstruction complicated by cardiac disease. Bone marrow transplantation, tested more than a decade ago, in a few patients was not felt to be beneficial. We hypothesized that unrelated umbilical cord blood transplantation would be beneficial if treatment is offered before patients have severe CNS disease. Between December 02 and October 2005, 5 patients with MPS II received unrelated umbilical cord blood transplantation at Duke University Medical Center. The patient's age at transplant ranged from 0.26 to 3.4 years with a median of 1.4 years. Follow up ranged from 1.7 to 3.7 years with a median of 1.9 years. Four patients engrafted full donnor and one had mixed donnor chimera. This patient died of GvHD complications after a second transplant. The 4 survivors have limitted skin GvHD. The oldest patient required a VP Shunt because of increased intracraneal pressure. He had sinusitis and developed a subdural empyema that required surgical drainage. All patients have mild hearing loss. The four surviving patients continue to gain cognitive, language, adaptive and motor skills with the oldest patient having slower gains.

We conclude that patients with MPS II succesfully treated with unrelated umbilical cord blood transplantation continue to gain neurodevelopmental skills in all areas despite mild hearing loss. Further follow up will be needed to determine if the adequate rate of skill acquisition will continue.

170

VENO-OCCLUSIVE DISEASE IN PEDIATRIC HSCT: THE CHILDREN'S ONCOLOGY GROUP EXPERIENCE

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Veno-occlusive disease (VOD) of the liver occurs in a minority of children undergoing HSCT. Historically, the incidence and severity of this transplant-related complication is lower in the pediatric population than in their adult counterparts undergoing myeloablative transplants. Reducing the intensity of the preparative regimen is associated with less VOD, but this transplant approach is not commonly used in the pediatric setting. To determine the incidence and severity of VOD in children, we surveyed each of the approved transplant centers in the Children's Oncology Group. We received surveys from 38 centers (45% response). From January 1, 2003 through December 31, 2005, these COG centers performed 2,725 transplants (45% of COG total). These centers performed an average of 24 transplants per year (range 8-188). Table 1 summarizes our findings. The overall incidence of VOD was 10.3% (mild=3.1%; mod=5.2%; severe= 2%). Of the children with VOD, 18.5% received Defibrotide (DF) (usually on compassionate basis). There were 49 children who died from VOD, representing a mortality rate of 1.8% for the total cohort but 17% for those who develop signs of VOD. These findings suggest that VOD is still a notable complication in the pediatric HSCT setting, with 7.2% of patients overall developing moderate or severe disease. Since a majority (93%) of pediatric HSCT are myeloablative, VOD is expected to remain a major cause of transplant related morbidity and mortality. Thus, it is important to study new agents and strategies that can reduced this complication in children.

*COG Transplants 2003-2005**

	2003	2004	2005	Total
# of Allo	504	510	513	1,527
# of Auto	415	343	440	1,198
# of RIC	73	58	69	200
Unrelated	260	268	259	787
VOD-mild	32	32	20	84
VOD-mod	36	48	57	141
VOD-severe	18	17	21	56
VOD-Death	7	16	26	49
Total VOD	86	97	98	281

*45% of COG Transplant Centers reporting